c) $T(n) = 4T(n/2) + n$

$T(1) = 1$

$T(n) = 4T(n/2) + n$

$4T(n/2) = 4^2 T(n/2^2) + 4(n/2)$

$4^2 T(n/2^2) = 4^3 T(n/2^3) + 4(n/2^2)$

$\downarrow$

$T(n) = 4^k T(n/2^k) + \sum_{i=0}^{k-1} \frac{4^i}{2^i} n \rightarrow \frac{2^{2i}}{x} = 2^i$

$T(n) = 4^k \underbrace{T(n/2^k)}_{T(1)} + \sum_{i=0}^{k-1} 2^i n$

$T(n) = \sum_{i=0}^{k-1} 2^i n$

$T(n) = n \cdot \sum_{i=0}^{k-1} 2^i$

$\frac{n}{2^k} = 1$

$n = 2^k$

$\sum_{i=0}^{k-1} 2^i + 2^{n+1} = 2^0 + \sum_{i=0}^{k-1} 2^{i+1}$

$\sum_{i=0}^{n-1} 2^i + 2^{n+1} = 1 + 2\sum_{i=0}^{n-1} 2^i$

$\sum_{i=0}^{n-1} 2^i = 2^{n-1} - 1$

$T(n) = n \cdot (2^{k+1} - 1)$

$T(n) = 2 \cdot n^2 - n$

Complexidade $O(n^2)$